

cagctacatg ccattaatct ggaaggaacg ggcaggaaag ccaccatgca aacaacccag
 agtcctgcc ccggcagccc cccagatact gaggatggct gggagccat cctatgcagg
 ggagagatca acttcgagg gtctggaaag aagcgaggca agtttgtaa ggtgccaagc
 agtgtggcc cctctgtgct tttgaactc ctgctcaccg agtggcacct gccagcccc
 aacctggtg tgccttggt gggtaggaa cgaccttgg ctatgaagtc gtggcttcgg
 gatgtcctgc gcaaggggct ggtgaaagca gctcagagca cagtgccctg gatcctgacc
 agtgcctcc acgtggcct ggcccgcct gttggacaag ctgtacgtga tcactctctg
 gctagcacat ccaccaagat ccgtgttagt gccatcgaa tggcctctc ggatcgaaatc
 cttcaccgtc aacttctaga tgggtccac caaaaggagg atactccat ccactaccca
 gcagatgagg gcaacattca gggacccctc tgccccctgg acagaatct ctcccacttc
 atccttgtgg agtcaggcgc cttgggagt gggAACGACG ggctgacaga gctgcagctg
 agcctggaga agcacatctc tcagcagagg acaggttatg ggggcaccag ctgcatccag
 atacctgtcc ttgcctgtt ggtcaatgtt gaccccaaca ccctagagag gatttccagg
 gcagtgagc aggctggccc atggctgatc ctggcagggt ctggcggcat tgctgatgt
 ctcgctgcc tggtagcca gcctcatctc ctggtggccc aggtggctga gaagcagttc
 agagagaaat tccccagcga gtgttctct tggaaagcca ttgtacactg gacagagctg
 ttacagaaca ttgctgcaca cccccacctg ctcacagtat atgacttcga gcaggagggt
 tcggaggacc tggacactgt catcctcaag gcacttgta aagcctgcaa gagccacagc
 caagaagccc aagactacct agatgagctc aagtttagcag tggcctggga tcgcgtggac
 attgccaaga gtgaardtctt caatggggac gtggaatggc agtcctgtga cttggaaagag
 gtgatgacag atgcctcgat gagaacaag cctgacttt tccgccttctt tggacacagc
 ggtgctgaca tggccgagtt cttgacctat gggcggctgc agcagttta ccattctgt
 tcccccaaga gcctccttctt tgaactgctg cagcgtaaagc atgaggaggg taggctgaca
 ctggccggcc tgggtgccc gcaggctcgg gagctgccc ttggctctgcc tgccttctca
 ctccacgagg tctcccgct actcaaagac ttccctgcatt acgcctgccc tggcttctac
 caggacgggc gcaggatggc ggagagaggg ccacctaagc ggcccgcagg ccagaagtgg
 ctgccagacc tcagtaggaa gagtgaagac cttggaggg acctgttctt ctggcgtgt
 ctgcagaatc gttatgagat ggccacatac ttctggcca tggccggga ggtgtggct
 gtcgtctgg ctgcctgcaaa gatcataaaag gaaatgtccc acctggagaa agaggcagag
 gtggcccgca ccatgcgtga ggccaagttt gggcgttccat tttctcagag
 tgctacggca acagttagga ccgtgcctt gcctgctgg tgcgaaggaa ccacagctgg
 agcaggacca cgtgcctgca cctggccact gaagctgatg ccaaggcctt ctttgcctt
 gacgggtgtc aacgcatttccat gaccaagatc tggggggag acatggccac aggcacaccc
 atcctacggc ttctgggtgc cttcacctgc ccagccctca tctacacaaa cctcatctcc
 ttcagtgagg atgccccca gaggatggac ctggatggc tgcaggagcc agacagctt
 gatatggaaa agagcttctt atgcagccgg ggtggccat tggagaagct aacagaggca
 ccaagggctc caggcgtatcttccat gggccacaa gctgccttcc tgctcacacg gtggaggg
 ttctgggccc tccctgtgac tggatgtgg tcatgtactt cgcattcctc
 ttccctgttca cctatgttctt cttgggtggac ttcaggccac caccgggg gccgtctgg
 tccgagggtt ccctcttattt ctgggtgttc acactgggtc tggaggaaat ccgacagg
 ttcttcacag atgaggacac gcacctggc aaaaattca ctctgtatgt ggaagacaac
 tggaaacaagt gtgacatggt ggccatctt ctgttgcattt tggagtcac ctgtagaatg
 gtccctcggt tggtaggac tggcaggacc gttctggcca ttgacttcat ggtgttcaca
 cttcggctca tccacatctt tgctattcac aagcagttgg gtcctaagat catcattgt
 gagcgaatga tgaaggatgt cttcttttc ctcttcttcc tgagctatg gcttggcc
 tatgggtgtca ccactcaggc cctgctgcat cccatgatg gccgttggga gtggattttc
 cgccgtgtc tatacaggcc ttacctgcag atcttggc aaatccctt ggtgaaatt
 gatgaggctc gtgtgaactg ttcttgcac cctgctgcat tggaaagctc ggcttgc
 cctaatcttctt atgccaactg gctggcattt ctctgctgg ttaccttccct gcttgcact

2/18

aatgtgctgc tcatgaacct tctgatcgcc atgttcagct acacattcca ggtggtgcaa
ggcaatgcag acatgttctg gaagtttcaa cgctaccacc tcatcgttga ataccatgga
agaccagctc tggccccgcc cttcatcctg ctcagccacc tgagcctggt gctcaagcag
gtcttcagga aggaaggcca gcataagcga caacatctgg agagagactt gcctgacccc
ttggaccaga agatcattac ctgggaaacg gttcaaaaagg agaacttcct gagtaccatg
gagaaacgga ggagggacag cgagggggag gtgctgagga aaacggcaca cagagtggac
ttgattgcca aatacatcggy ggggctgaga gagcaagaaaa agaggatcaa gtgtctggaa
tcacaggcca actactgtat gctcctcttg tcctctatga cgatcacact ggctccagga
ggcacctact caagctctca gaactgtggt tgcaggagtc agccagcctc tgcttagagac
agggagtacc tagagtctgg cttgccaccc tctgacacact gaaatggaga aaccacttgc
tctagagccc cagacctggc cacatcgagt tttggggca catcaacctt cccccactcc
cagcagcccc aagaatggt cttcaaggcc ttgctacaga tcacttctt gacatccctt
cctaagagaa tgaaactcat gtcttggca tctattcggg agcctcagaa gtatcctctc
cagcagggca agattttca tgtccacta aagcttcac tggctggac tggacagctg
gatctggcca agtcctacat aggacaccat ctgcctggat gggctattt aggtctaacc
cctgtcttac cctgagttcc taagaagcca acctcttaaa cactaggttt ctttctgacc
cctgaccac tcattagctg accagctcct agagggcagg actcagatct attgttaatta
cctcccatct ttcacccccc acagcattat ctgtctgatc attctggcag aaaccccaag
atattgctca agggtaccca atgctacttt actttctata aagcctgttag accacctcaa
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa
aaaaaaaaaa aaaaaaaaaa

FIG. 1B

MQTTQSSCPSPDTEDGWEPILCRGEIFFGSGKKRGKFKVPPSSVAPSVLFFELLTEWHLPAPNLVVSLVGEERPLAMKSWLRDVLR
KGLVKAAQSTGAWILTSALHVGLARHVQARDHSLASTSTKIRVAIGMASLDRILHRQLLDGVHQKEDTPIHYPADEGNIQGPLCPL
DSNLSHFILVESGALGSMDGLTEQLSLEKHISQQRGTGGGTSIQIPVLLVNQDPNTLERISRAVEQAAPWLILAGSGGIADVLA
ALVSQPHLLVPQVAEKQFREKFPSCEFSWEAVHHWTELLQNIAAHPHLLTVYDFEQEGSESDLTIVKALVKACKSHSQEAQDYLDLK
LAWADRVDIAKSEIFNGDVEWKSCDLEEVMTDALVSNKPDFVRLFVDSGADMAEFLTYGRLQLYHSVSPKSLLFELLQRKHEEGRLT
LAGLGAAQQARELPILPAFLHVSRLVKDFLHDACRGFYQDGRRMEERGPCKRPAQQKWLPDLSRKSEDPWRLFLWAVLQNRYEMATY
FWAMGREGVAAALAACKIKEMSHLEKEAEVARTRMREAKYEQQLADLFSECYGNSEDRAFALLVRRNNHSWSRTTCLHLATEADAKAFFA
HDGVQAFLTKIWGDMAATGTPILRLLGAFTCPALIYTNLNISFSEADAPQRMDLEDLQEPDSLMEKSFLCSRGGQLEKLTEAPRAPGDLG
PQAAFLLTRWRKFWGAPVTFLGNVVMYFAFLFLFTYVLLVDFRPPPQGPSGEVTLYFWVFTLVLIEIRQGFTDEDTHLVKKFTLYV
EDNWINKCDMVAIFLFLFIVGWTCRMVPSVFEAGRTVLAIDFMVFTLRLIHFIAIKQLGPKIIIVERMMKDWFVFFLFFLSVWLVAYGVTTQ
ALLHPHDGRLEWIFRRVLYRPYLQIFGQIPLDEIDEARVNCSLHPLLESASCPCPNLYANWLVIILLVTNVLLMNLLIAMFSYT
FQVVGNAADMFWKFKQRYHLIVEYHGRPALAPPFILLSHSLVLKQVFRKEAQHKRQHLLERDLPDPLDQKIIITWETVQKENFLSTMKRR
RDSEGEVLRKTAHRVDLIAKYIGGLEREQEKRICKLESQANYCMLLSSMTDTLAPGGTYSSSQNCGRSQPASARDREYLESGLPPSDT

FIG. 2

atgcaggatg tccaaggccc ccgtcccgga agccccgggg atgctgaaga ccggcgggag
 ctgggcttgc acaggggcga ggtcaacttt ggagggtctg ggaagaagcg aggcaagtt
 gtacgggtgc cgagcggagt ggccccgtct gtgtctttt acctgctgct tgctgagtgg
 cacctgccgg cccccaacct ggtgggttcc ctgtgggtg aggacgagcc ttgcctcatg
 aagtccctggc tgcggatgt gtcgcgaag ggctggta aggacgctca gagcacagga
 gcctggatcc tgaccagtgc ctcgcgtg ggctggcca ggcattgtcg gcaggccgtg
 cgcgaccact cgctggccag cacgtccacc aaggtccgtg tggttgcgt cggtatggcc
 tcgctggcc gcgtcctgca cccgcatt ctggaggagg cccaggagga ttttcctgtc
 cactaccctg agatgacgg cggcagccag ggccccctct gttcaactgga cagcaacctc
 tcccacttca tcctgggta gccaggcccc cggggaaagg gcatgggct gacggagctg
 cggctgaggc tggagaagca catctcgag cagagggcgg gctacggggg cactggcagc
 atcgagatcc ctgtcctctg cttgctggc aatggtgatc ccaacacctt ggagaggatc
 tccagggccg tggagcaggc tgccccgtgg ctgatcctgg taggctcgaa gggcatcgcc
 gatgtgcttgc ctgccttagt gaaccagccc caccctctgg tgcccaaggt ggccgagaag
 cagtttaagg agaagttccc cagcaagcat ttcttttggg aggacatcg ggcgtggacc
 gagggtccg aggagctgga cacggtcatac ctgaaaggcgc tggtaaaagc ctgcaagagc
 cacagccagg agcctcagga ctatctggat gagtcagaagc tggccgtggc ctgggaccgc
 gtggacatcg ccaagagtga gatcttcaat gggacgtgg agtggaaatc ctgtgacactg
 gaggaggtga tgggtggacgc cctggtcagc aacaagccc agtttgcg cctctttgtg
 gacaacggcg cagacgtggc cgacttcctg acgtatggc ggctcagga gctctaccgc
 tccgtgtcac gcaagagcct gctttcgac ctgtgcagc ggaaggcagg ggaggccgg
 ctgacgctgg cccgcctggg caccaggcag gcccgggagc caccggcggg gccaccggcc
 ttctccctgc acgaggcttc cccgtactc aaggacttcc tgcaggacgc ctgcccaggc
 ttctaccagg acggccggcc aggggaccgc aggagggcgg agaaggggcc ggccaagcgg
 cccacgggcc agaagttggct gctggacctg aaccagaaga gcgagaaccc ctggcgggac
 ctgttccctgt gggccgtgct gcagaaccgc caccaggatgg ccacctaatt ctggccatg
 ggccaggaag gtgtggcagc cgcaactggc gcctgaaaa ttctcaaaga gatgtcgac
 ctggagacgg aggccgaggc gggccgagcc acgcgcgagg cgaaatacga gcggtggcc
 cttgacctct tctccgagtg ctacagcaac agtggggccc ggccttcgc cctgctggtg
 cgccggaacc gtcgtggag caagaccacc tgcctgcacc tggccaccga ggctgacgccc
 aaggccttct ttgcccacga cggcggttagt gccttctga ccaggatctg gtgggggac
 atggccgcag gcacgcccatt cctgcggctg ctaggacct ttctctgccc cgcctcgtc
 tataccaaacc tcatcacctt cagtggaaa gtccttctga ggacaggcct ggaggacactg
 caggacctgg acagcctgga cacggagaag agcccgtgt atggcctgca gagccgggtg
 gaggagctgg tggaggcgcc gagggtctag ggtgaccgag gcccacgtgc tgtcttctg
 ctcacacgtt ggcggaaatt ctggggcgtt cccgtactg tggcttggg gacgtggc
 atgtacttcg ctttccctt cctgttccacc tacgtctgc tggtgactt caggccgccc
 ccccaaggcc cctcaggccc cgaggtcacc ctctacttct gggctttac gctgggtctg
 gagggaaatcc ggcagggtt cttcacagac gaggacacac acctggtgaa gaagttcaca
 ctgtatgtgg gggacaactg gaacaagtgt gacatggtg ccattttctt gttcatcg
 ggtgtcacct gcaggatgtt ggcgtggcg tttgaggctg gccgcacgg cctcgccatg
 gacttcatgg tggtcacgtt gcggtgtatc catactttt ccatacacaa gcaactggc
 cccaaatca tcgtggtaga ggcgtatgtt aaggacgtct tcttcttcc tttttctg
 agcgtgtggc tcgtggctt cgggtgtacc acccaggcgc tgctgcaccc ccatgacggc
 cgcctggagt ggttctccg cccgggtgtcc taccggccctt acctgcagat cttcgccag
 atcccactgg acgagattga tgaagccgt gtgaactgtt ccacccaccc actgctgt
 gaggactcac catcctgccc cagcctctat gccaactggc tggtcaccc tctgctggc
 accttccctgt tggtcaccaa tgtgtgtctc atgaacactgc tcatcgccat gttcagctac
 acgttccagg tggtgcaaggc caacgcagac atgttctgga agttccagcg ctacaacctg

5/18

attgtggagt accacgagcg ccccgccctg gccccgcct tcatcctgct cagccacctg
agcctgacgc tccgcccggt cttcaagaag gaggtgagc acaagcggga gcacctggag
agagacctgc cagaccctgc ggaccagaag gtcgtcacct gggagacagt ccagaaggag
aacttcctga gcaagatgga gaagcggagg agggacagcg agggggaggt gctgcggaaa
accgcccaca gagtggactt cattgccaag tacctcgggg ggctgagaga gcaagaaaag
cgcatcaagt gtctggagtc acagatcaac tactgctcgg tgctcgtgtc ctccgtggct
gacgtgctgg cccagggtgg cggcccccgg agctctcagc actgtggcga gggaaagccag
ctggtggtcg ctgaccacag aggtggttt aatggctggg aacaaccgg ggctggccag
cctccctcgg acacatga

FIG.3B

MQDVQGPRPG SPGDAEDRRE LGLHRGEVNF GGSGKKRGKF VRVPSGVAPS
VLFDLLLAEW HLPAPNLVVS LVGEEQPFAM KSWLRDVLRK GLVKAQSTG
AWILTSALRV GLARHVGQAV RDHSLASTST KVRVVAVGMA SLGRVLHRR
LEEAQEDFPV HYPERDDGGSQ GPLCSLDSNL SHFILVEPGP PGKGDGLTEL
RLRLEKHISE QRAGYGGTGS IEIPVLCLLV NGDPNTLERI SRAVEQAAPW
LILVGSGGIA DVLAAVNQP HLLVPKVAEK QFKEKFPSKH FSWEDEIVRWT
KLLQNITSHQ HLLTVYDFEQ EGSEELDTVI LKALVKACKS HSQEPPQDYLD
ELKLAVAWDR VDIAKSEIFN GDVEWKSCDL EEVMDALVS NKPEFVRLFV
DNGADVADFL TYGRLQELYR SVSRKSLLFD LLQRKQEEAR LTLAGLGTQQ
AREPPAGPPA FSLHEVSRVL KDFLQDACRG FYQDGRPGDR RRAEKGPAGR
PTGQKWLLDL NQKSENPWD LFLWAVLQNR HEMATYFWAM GQEGVAAALA
ACKILKEMSH LETEAEAARA TREAKYERLA LDLFSECYSN SEARAFALLV
RRNRCWSKTT CLHLATEADA KAFFAHDGVQ AFLTRIWWGD MAAGTPILRL
LGAFLCPALV YTNLITFSEE APLRTGLEDL QDLDSDLTEK SPLYGLQSRV
EELVEAPRAQ GDRGPRAVFL LTRWRKFWGA PTVFLGNVV MYFAFLFLFT
YVLLVDFRPP PQGPSGPEVT LYFWVFTLVL EEIRQGFFTD EDTHLVKKFT
LYVGDNWNKC DMVAIFLFIV GVTCRMLPSA FEAGRTVILAM DFMVFTLRLI
HIFAIHKQLG PKIIVVERMM KDVFFFLLF SVWLVAYGVT TQALLHPHDG
RLEWIFRRVL YRPYLQIFGQ IPLDEIDEAR VNCSTHPLLL EDSPSCPSLY
ANWLVILLLV TFLLVTNVLL MNLLIAMFSY TFQVVQGNAD MFWKFQRYNL
IVEYHERPAL APPFILLSHL SLTLRRVFKK EAEHKREHLE RDLPDPLDQK
VVTWETVQKE NFLSKMEKRR RDSEGEVLRK TAHRVDFIAK YLGGGLREQEK
RIKCLESQIN YCSVLVSSVA DVLAQGGGPR SSQHCGEGSQ LVAADHRGGL
DGWEQPGAGQ PPSDT*

FIG.4

6/18

mTrp8	MQTTQSSCPGSPPDTEDGWEPILCRGEINFGGSGKKRGKFVKVPSVLFELLTEW	60
hTRP8	MQDVQGPRPGSPGDAEDRRELGLHRGEVNFGGSGKKRGKFVRVPSGVAPSVLFDLLLAEW	60
	** . *.. **** *;** * * ***:*****:*****:***.*****:***:***	
mTrp8	HLPAPNLVVSLVGEERPLAMKSWLRDVLRKGLVKAAQSTGAWIITSALHVGLARHVGQAV	120
hTRP8	HLPAPNLVVSLVGEEQPFAMKSWLRDVLRKGLVKAAQSTGAWIITSALRVGLARHVGQAV	120
	*****:*****:*****:*****:*****:*****:*****:*****:*****:*****	
mTrp8	RDHSLASTSTKIRVVAIGMASLDRILHRQLLDGVHQKEDETPIHYPADEGNIQGPLCPLDS	180
hTRP8	RDHSLASTSTKVRVVAVGMAISLGRVLHRRILEEAQ--EDFPVHYPEDDGGSQGPLCSLDS	178
	*****:*****:*****.*:***:*: .. ** *;*** *.*. *****.***	
mTrp8	NLSHFILVESGALGSNDGLTELQLSLEKHISQQRTGYGGTSCIQIPVLCLLVNGDPNTL	240
hTRP8	NLSHFILVEPGPPKG-DGLTELRLRLEKHISEQRAGYGGTGSIEIPVLCLLVNGDPNTL	237
	*****. *. *.* *****: * *****: **:*****. *. *:*****:*****	
mTrp8	ERISRAVEQAAPWLILAGSGGIADVLAALVSQPHLLVPQVAEKQFREKFPSECFSWEAIV	300
hTRP8	ERISRAVEQAAPWLILVGSGGIADVLAALVNQPHLLVPKVAEKQFKEKFPSKHFSWEDIV	297
	*****:*****. *****:*****:*****:*****:*****:*****:*****:*****	
mTrp8	HWTENNQIAAHPHLLTVYDFEQEGSEDLDTVILKALVKACKSHSQEAQDYLDELKLAVA	360
hTRP8	RWTKLLQNITSHQHLLTVYDFEQEGSEELDTVILKALVKACKSHSQEPQDYLDELKLAVA	357
	:***: * *****:*****:*****:*****:*****:*****:*****	
mTrp8	WDRVDIAKSEIFNGDVEWKSCDLEEVMTDALVSNKPDFVRLFVDSGADMAEFLTYGRLQQ	420
hTRP8	WDRVDIAKSEIFNGDVEWKSCDLEEVMVDALVSNKPEFVRLFVDNGADVADFLTYGRLQE	417
	*****:*****:*****:*****:*****:*****:*****:*****:*****:*****:	
mTrp8	LYHSVSPKSLLFELLQRKHEEGRLTLAGLGAQQARELPIGLPAFSLHEVSRLKDFLHDA	480
hTRP8	LYRSVSRKSLLFDLLQRKQEEARLTLAGLGTQQAREPPAGPPAFSLHEVSRLKDFLQDA	477
	:* *****:*****:***.*****:*****:***** * * *****:*****:***	
mTrp8	CRGFYQDGR---RMEERGPPKRPAQKWLPDFSRKSEDPWRDLFLWAVLQNRYEMATYF	536
hTRP8	CRGFYQDGRPGDRRRAEKGPDKPTGQKWLDDLNQKSENPWRLDFLWAVLQNRRHEMATYF	537
	***** * *:***.***:***** **. :***:*****:*****:*****	
mTrp8	WAMGREGVAAALAACKI IKEMSHLEKEAEVARTMREAKYEQLALDLFSECYGNSEDRAFA	596
hTRP8	WAMGQEGVAAALAACKILKEMSHLETEAEAARATREAKYERLALDLFSECYSNSEARAF	597
	****:*****:*****:*****. ***. **: *****:*****:*****. ***. ***	

FIG.5

Classification and Secondary Structure Prediction of Membrane Proteins

<http://azusa.proteome.bio.tuat.ac.jp/sosui/>

Orientation of the N-terminus of	mTrp8:	IN		
Number of transmembrane helices of	mTrp8:	6		
Position of transmembrane helices of	mTrp8:	helix	begin	end
	1		732	754
	2		769	792
	3		807	829
	4		839	863
	5		870	893
	6		955	977

Orientation of the N-terminus of	hTrp8:	IN		
Number of transmembrane helices of	hTrp8:	6		
Position of transmembrane helices of	hTrp8:	helix	begin	end
	1		733	755
	2		770	792
	3		807	829
	4		843	863
	5		873	893
	6		955	977

FIG.6A

8/18

HYDROPHOBICITY PROFILE OF mTrp8 (MADE WITH DNAMAN SOFTWARE)

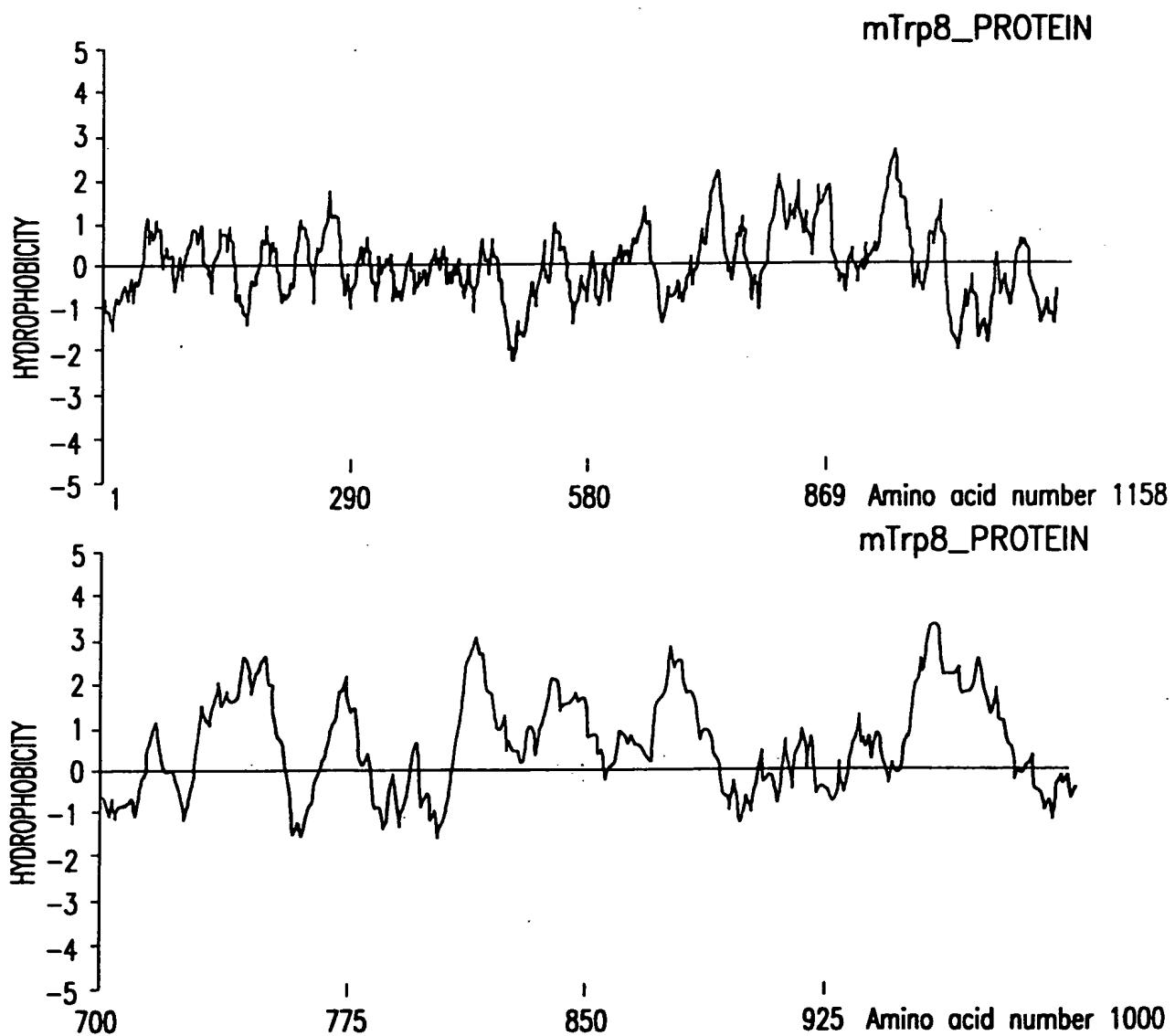


FIG. 6B

9/18

HYDROPHOBICITY PROFILE OF hTrp8 (MADE WITH DNAMAN SOFTWARE)

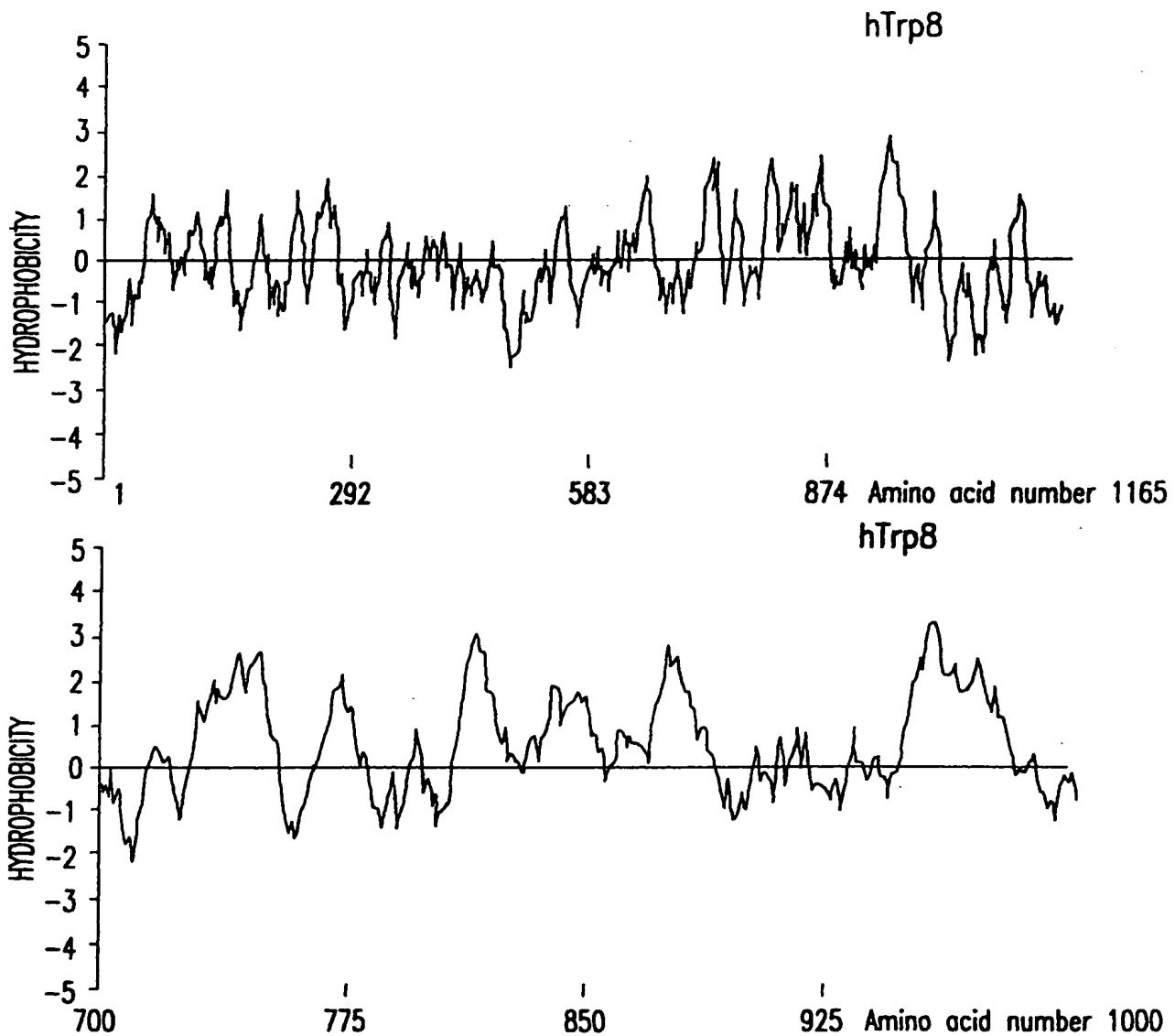


FIG. 6C

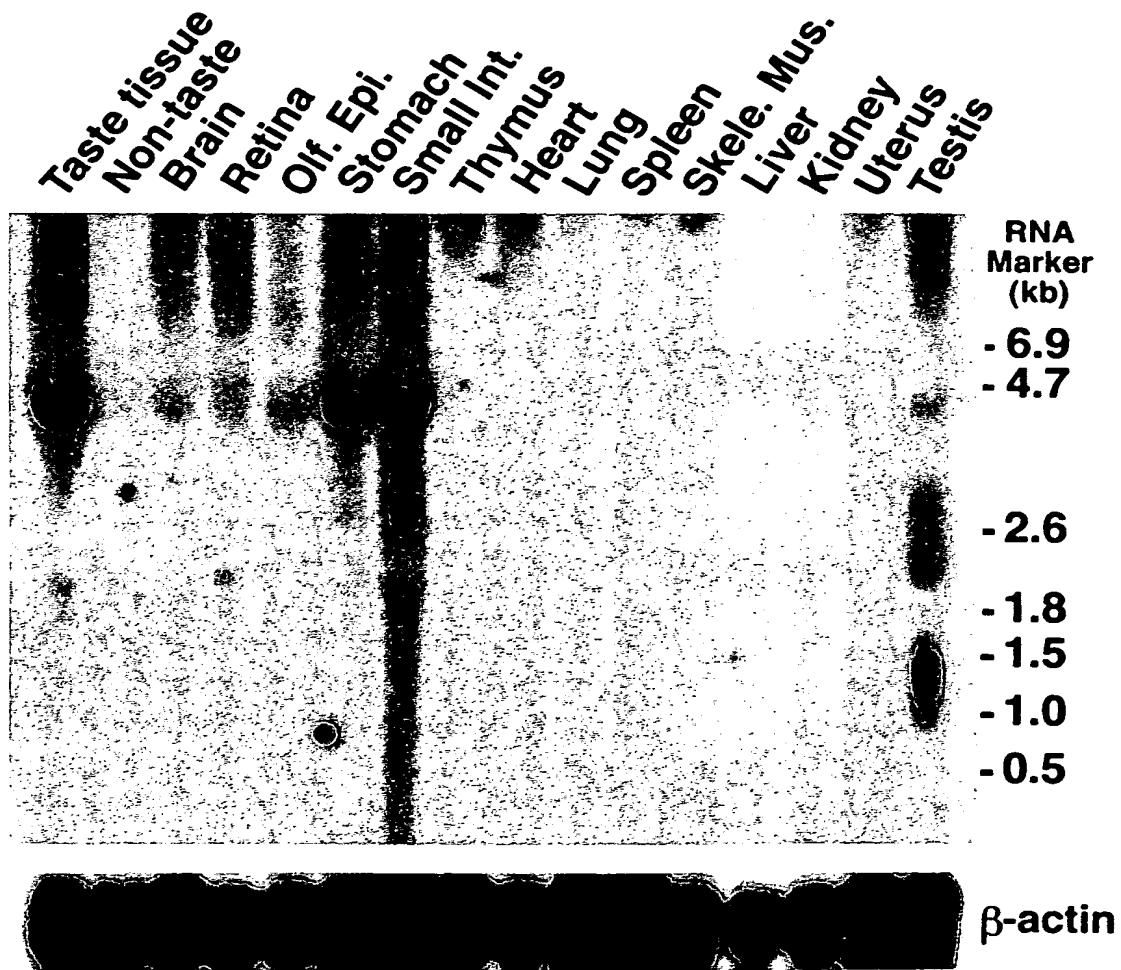


FIG. 7

11/18

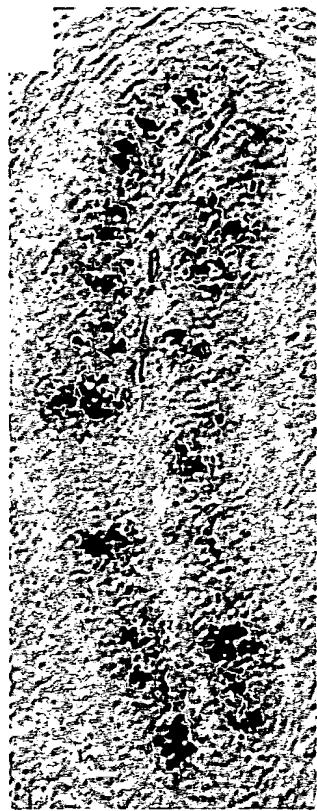


FIG.8A

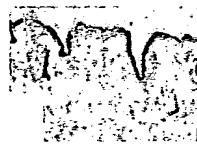


FIG.8E

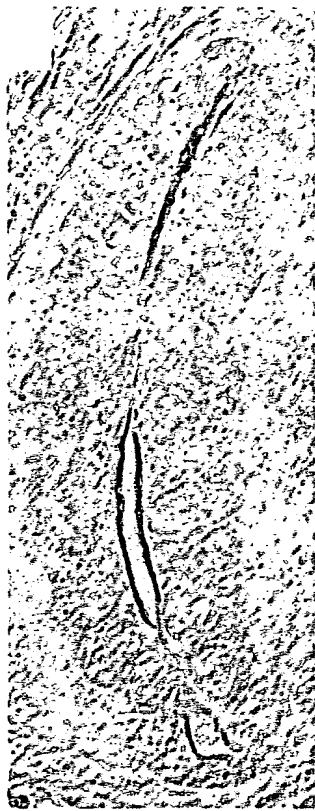


FIG.8B



FIG.8C

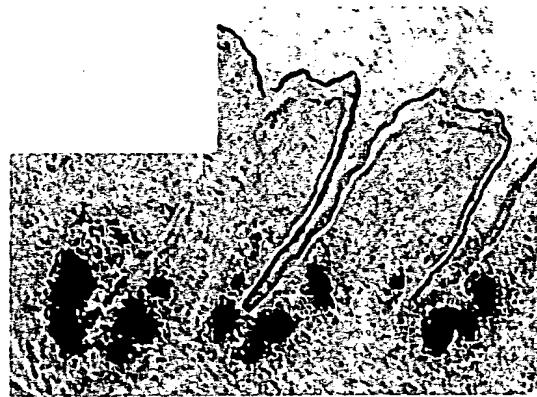


FIG.8D

12/18



FIG.9A



FIG.9B



FIG.9C



FIG.9D



FIG.9E

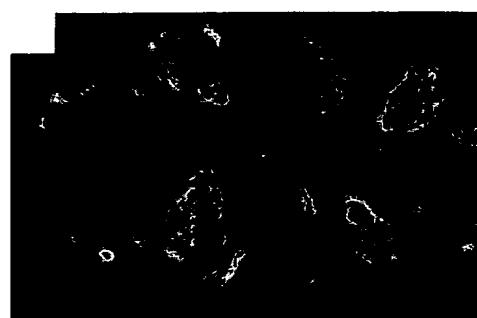


FIG.9F

13/18

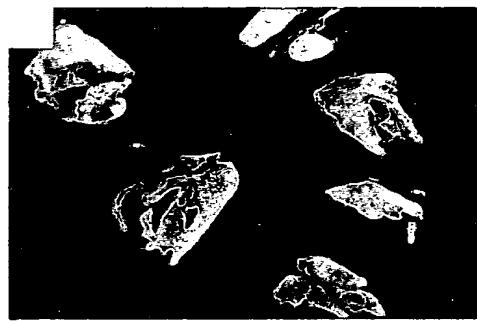


FIG.9G



FIG.9H



FIG.9I

14/18

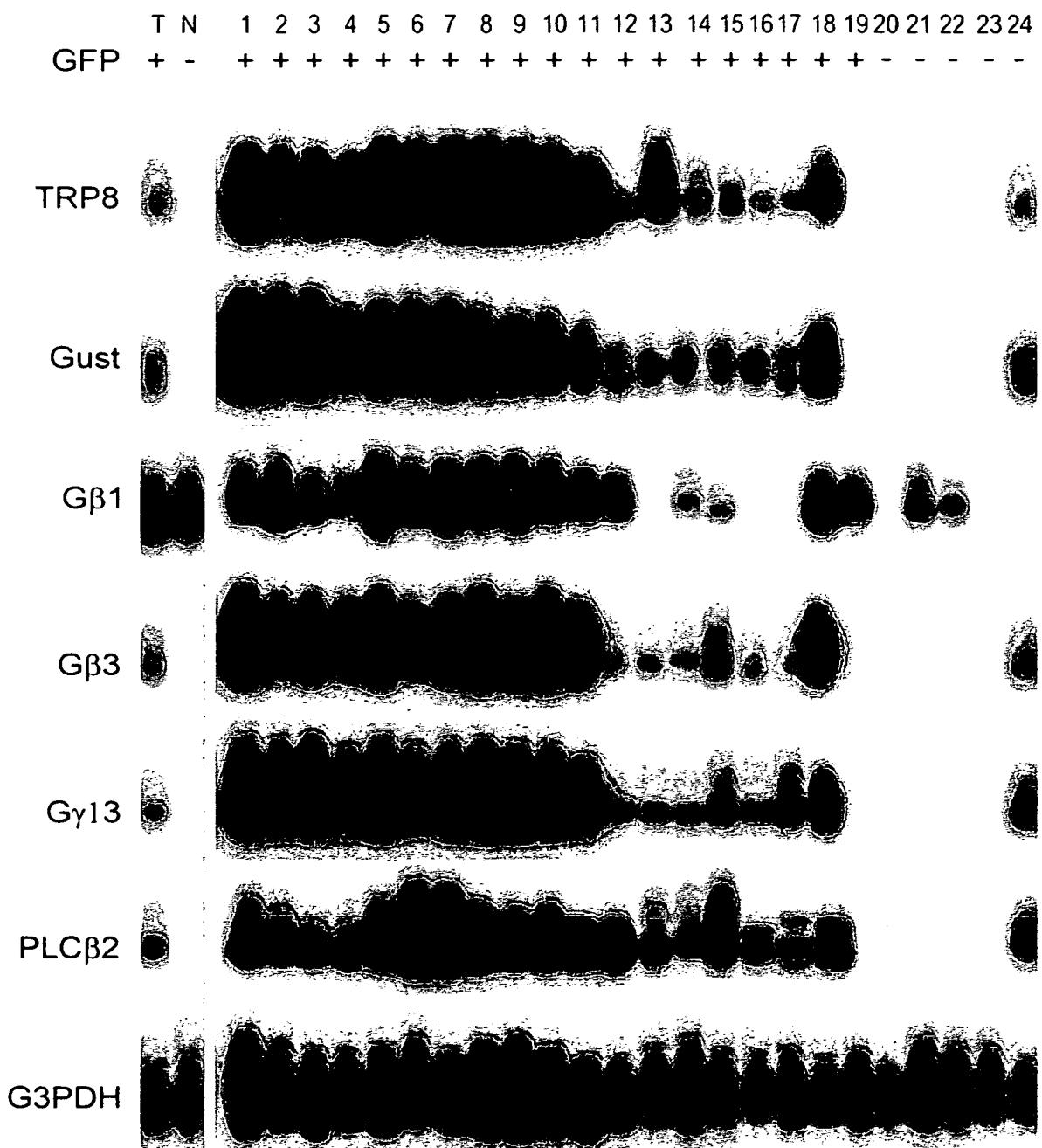


FIG.10

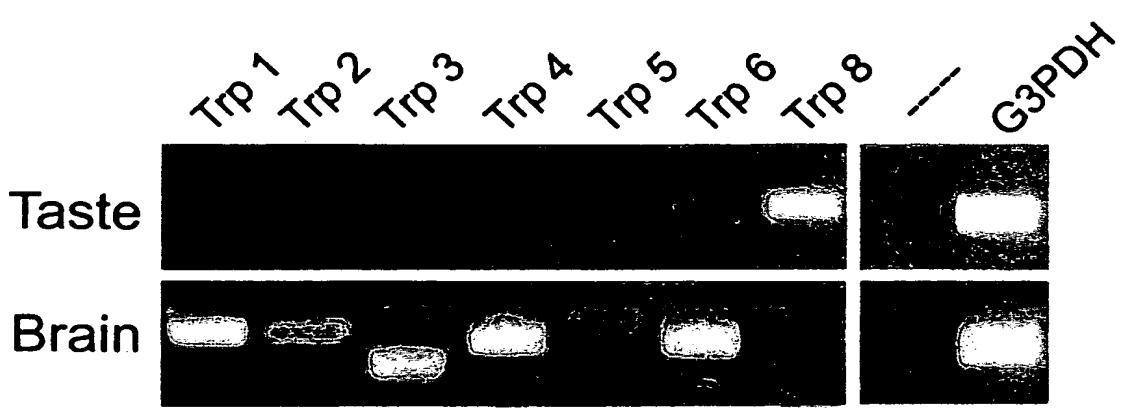


FIG. 11

Trp8+THAPSIGARGIN

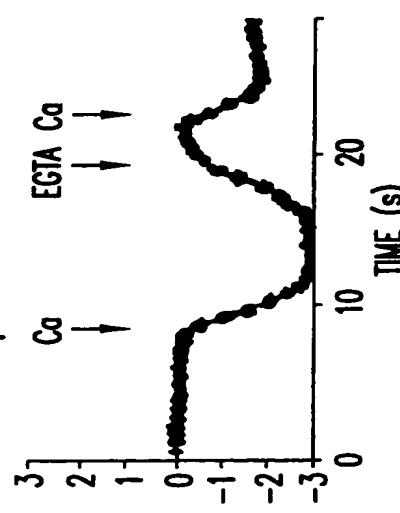


FIG. 12A

I-V RELATIONSHIP IN Trp8 INJECTED OOCYTES

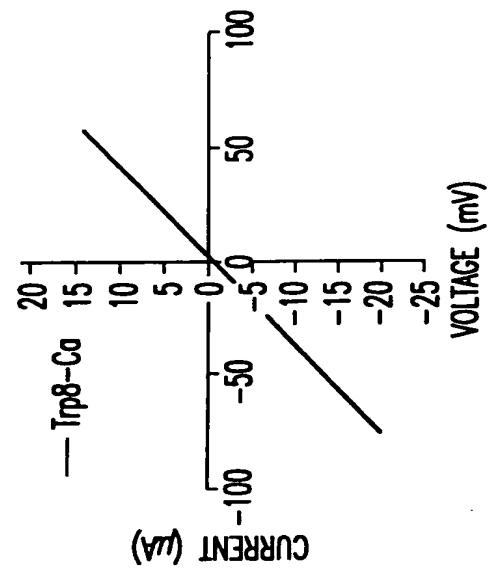


FIG. 12B

H₂O+THAPSIGARGIN

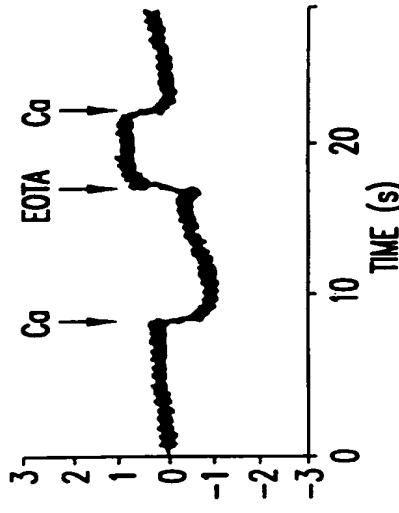


FIG. 12C

PEAK I_{Ca}

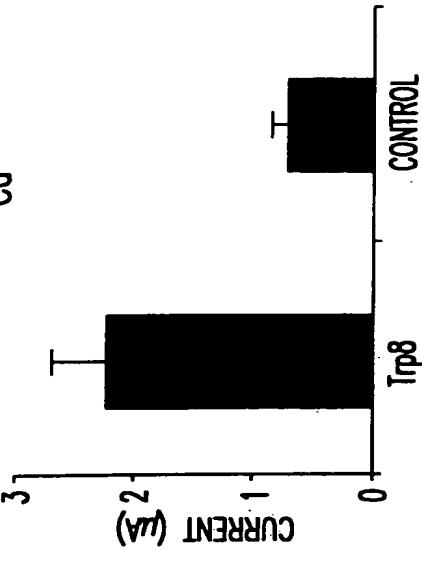


FIG. 12D

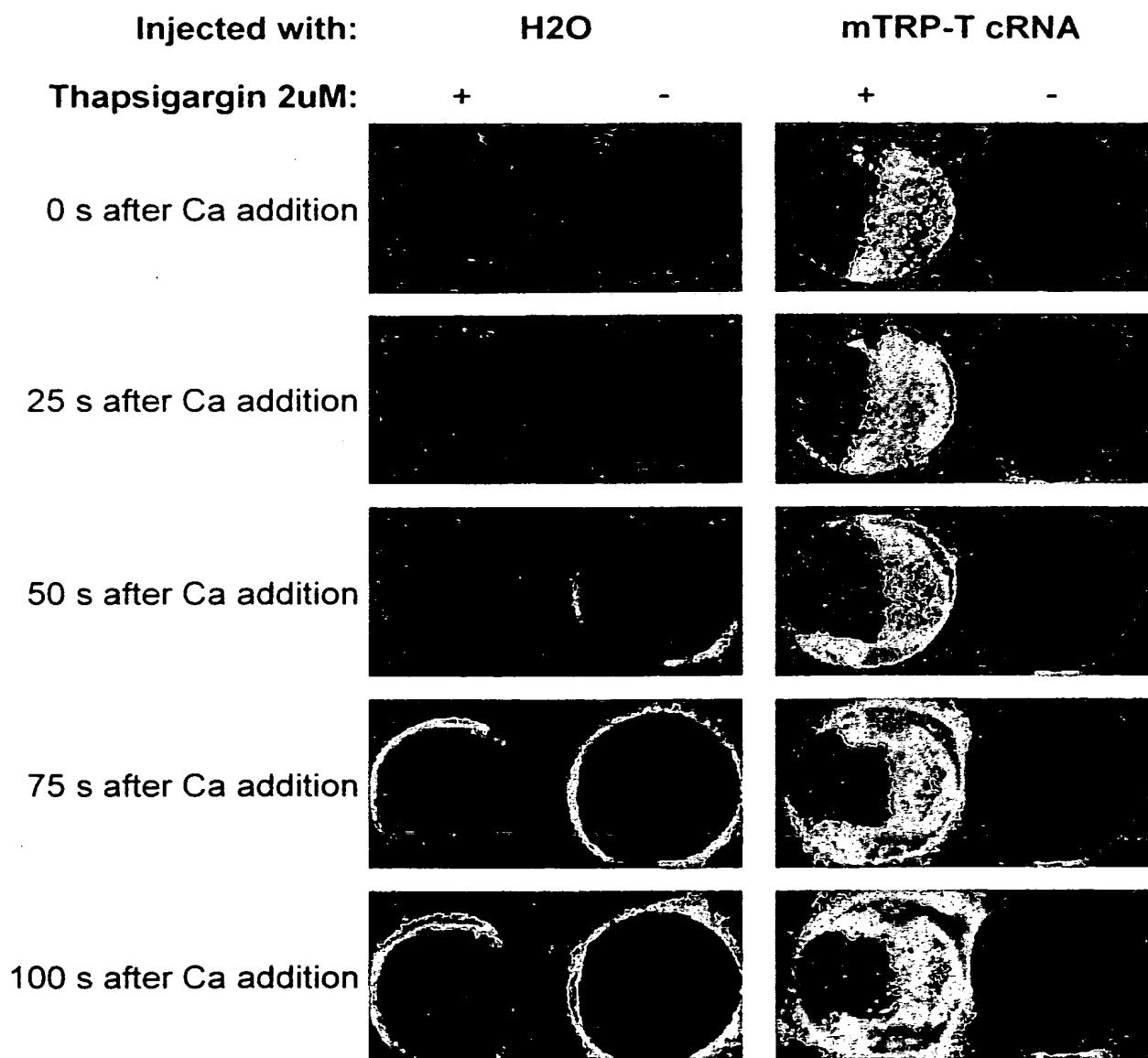


FIG.13

TRANSDUCTION OF TASTE STIMULI

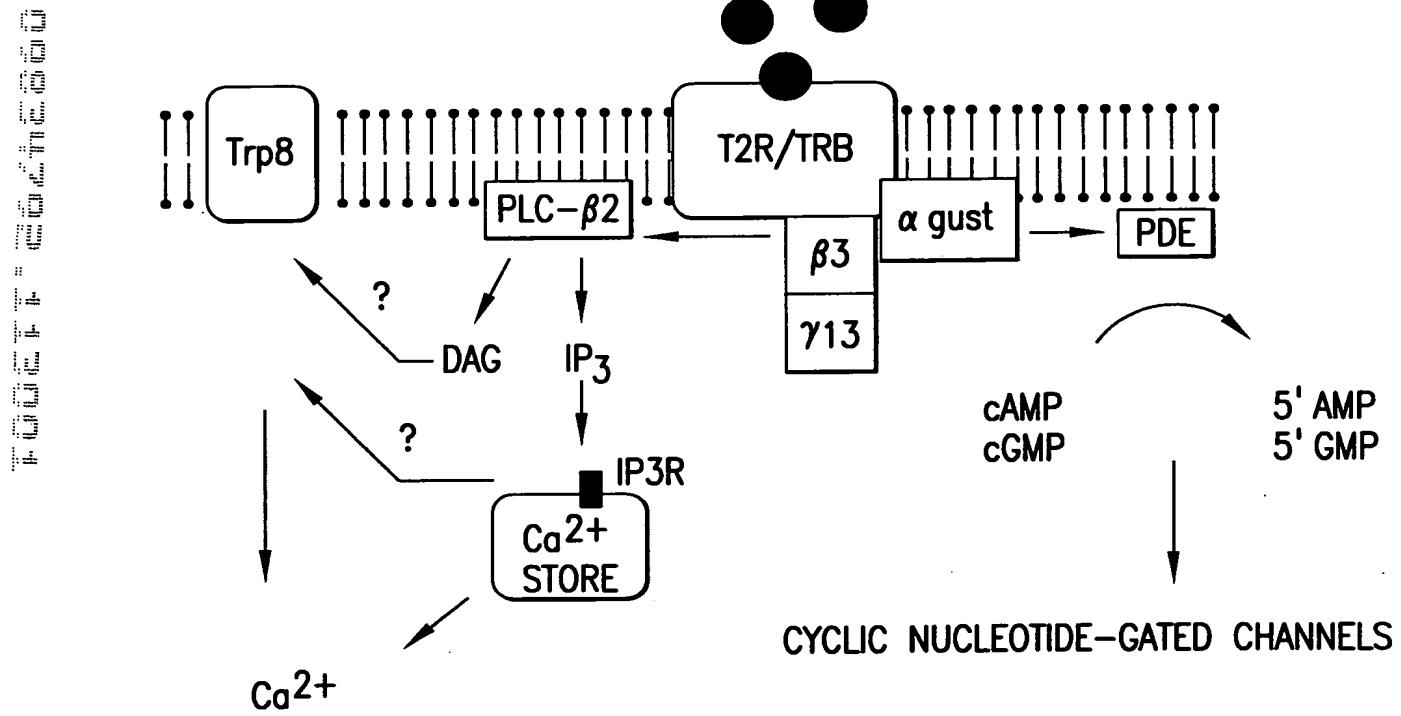


FIG. 14